AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (Currently amended) A method comprising:

recursively calculating state metric vectors from a block of symbols and storing at a first storage area ~~a~~ reference vectors corresponding to a selected group of the calculated state metric vectors ~~of a state metric comprising a plurality of vectors calculated, in a predetermined direction, from a block of symbols~~; and

re-calculating at least some of the state metric vectors based on the stored reference vectors and storing at a second storage area the at least some re-calculated state metric vectors.

2. (Canceled)

3. (Canceled)

4. (Previously presented) A method according to claim 1, wherein re-calculating at least some of the state metric vectors comprises calculating state metric vectors which were not stored as reference vectors.

5. (Currently amended) A method according to claim ~~3~~1, wherein storing ~~two or more~~ reference vectors at the first storage area comprises storing a number of reference vectors ~~which is~~ equal to about the square root of the number of the calculated state metric vectors.

6. (Currently amended) A method according to claim ~~3~~1, wherein storing ~~two or more~~ reference vectors at the first storage area comprises storing vectors selected in response~~ive~~ to locations of singular functions used in ~~the~~ calculating ~~of~~ the ~~calculated~~ state metric vectors.

7. (Currently amended) A method according to claim ~~3~~1, wherein storing ~~two or more~~ reference vectors at the first storage area comprises storing vectors selected in predetermined intervals.

8. (Currently amended) A method according to claim 7, wherein storing ~~two or more reference~~ vectors selected in predetermined intervals comprises storing reference vectors with equal intervals between them.

9. (Currently amended) A method according to claim 7, wherein storing ~~two or more reference~~ vectors selected in predetermined intervals comprises storing ~~reference~~ vectors with intervals of decreasing size between them.

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10. Canceled.

11. (Currently amended) A method according to claim 1, wherein re-calculating at least some of the state metric vectors comprises re-calculating at least some of the state metric vectors using a reverse function of a function used in ~~the~~ recursively calculating the state metric vectors from the block of symbols ~~the reference vector of the state metric~~.

12. Canceled.

13. Canceled.

14. Canceled

15. (Currently amended) A method according to claim 1, wherein re-calculating at least some of the state metric vectors comprises re-calculating at least some of the vectors using a function ~~which was~~ used in recursively calculating the state metric vectors from the block of symbols ~~the calculation of the reference vector of the state metric~~.

16. (Previously amended) A method according to claim 1, ~~further comprising:~~ wherein recursively calculating the state metric vectors comprises calculating the state metric vectors

~~by~~ using a function which is an approximation of an original function; and wherein re-calculating at least some of the state metric vectors comprises re-calculating ~~the~~ at least some of the state metric vectors ~~by~~ using a reverse function of the original function.

17. (Currently amended) A method according to claim 1, wherein ~~storing the reference vector further~~ recursively calculating the state metric vectors comprises calculating the state metric vectors ~~from the block of symbols in the predetermined direction by~~ using a function which is an approximation of an original function when the original function is non-reversible.

18. (Currently amended) A method according to claim 17, wherein recursively calculating the state metric vectors from the block of symbols ~~in the predetermined direction~~ comprises forward calculating of the state metric vectors.

19. (Currently amended) A method according to claim 17, wherein recursively calculating the state metric vectors from the block of symbols ~~in the predetermined direction~~ comprises backward calculating of state metric vectors.

20. Canceled.

21. (Currently amended) A method according to claim 16, wherein recursively calculating the state metric vectors comprises calculating a number of vectors substantially equal to a size of an encoding block.

22. (Currently amended) A method according to claim 16, wherein calculating the state metric vectors comprises calculating a number of vectors substantially smaller than a size of an encoding block.

23. (Currently amended) A method comprising:

calculating a plurality of state metric vectors from a block of symbols in a first direction;

storing ~~a~~ reference ~~veetor~~ vectors selected from ~~of~~ the calculated state metric vectors; and

re-calculating the state metric vectors from ~~a~~ the block of symbols in a second direction based on the stored reference ~~veetor~~ vectors.

24. (Currently amended) A method according to claim 23, further comprising re-calculating a first state metric vector from the block of symbols in the first direction after re-calculating a second state metric vector from the block of symbols in the second direction.

25. Canceled.

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26. (Currently amended) A method according to claim 23, wherein storing the reference vectors ~~veetor~~ comprises storing two or more reference vectors calculated in predetermined intervals.

27. (Currently amended) A method according to claim 24, wherein re-calculating the first state metric vector comprises re-calculating the first state metric vector based on a closest stored reference vector.

28. Canceled.

29. (Currently amended) A method according to claim 23, further comprising:

~~storing two or more reference vectors;~~

dividing the block of symbols into ~~a~~ two or more segments defined by ~~the~~ respective stored reference vectors; and

re-calculating the first state metric vector for the two or more segments based on ~~a~~ the respective stored reference ~~vector~~ vectors ~~of the segment~~.

30. (Previously amended) A method according to claim 29, wherein re-calculating for the two or more segments comprises re-calculating state metrics for some of the two or more segments.

31. (Previously amended) A method according to claim 29, comprising storing a re-calculated reference vector of the re-calculated state metric.

32. Canceled.

33. (Currently amended) A method according to claim 31, comprising storing the vectors of the re-calculated state metrics of ~~the~~ a segment of the two or more segments.

34-42 Canceled.

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43. (Currently amended) A ~~An apparatus~~ decoder comprising:

~~circuitry~~ a backward calculation unit to calculate state metric vectors from a block of symbols in a predetermined direction; and

a memory having a ~~long-term~~ first storage area to store a reference vector of the calculated state metric vectors and a ~~short-term~~ second storage area to store at least some ~~of the re-~~calculated state metric vectors which are re-calculated from the block of symbols in the predetermined direction based on the stored reference vector.

44. (Currently amended) The ~~apparatus~~ decoder of claim ~~43~~ 44, wherein a maximal storage space of the memory is ~~capable~~ able to store less than fifty percent of a predetermined number of state metric vectors.

45. (Currently amended) The ~~apparatus~~ decoder of claim 44 ~~43~~, wherein the maximal storage space of the memory is ~~capable~~ able to store less than twenty percent of the predetermined number of state metric vectors.

46. (Currently amended) The ~~apparatus~~ decoder of claim 43, wherein the backward calculation unit ~~circuitry~~ implements a plurality of different functions for calculating the state metric vectors.

47. (Currently amended) The ~~apparatus~~ decoder of to claim 46, wherein the backward calculation unit ~~circuitry~~ implements a pair of functions for calculating the state metric vectors ~~which~~ and wherein the pair comprise mutual reverse functions.

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48. (Currently amended) The ~~apparatus~~ decoder of claim 43, wherein the ~~long term~~ first storage area is used to store two or more reference vectors in predetermined intervals and the ~~short term~~ second storage area is used to store the calculated state metric vectors between two reference vectors.

49. (Currently amended) The ~~apparatus~~ decoder of claim 48, wherein the ~~long term~~ first storage area serves also for storing state metric vectors from between two reference vectors.